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# Soybeans

*A War Crop*

How to get

TOP YIELDS

AMERICAN OIL SUPPLIES have been cut 1 to 1¼ billion pounds a year by the war in the Pacific. This reduction must be offset as far as possible by growing more of our own oil-producing crops. Soybeans are one of the best of these crops, and Illinois farmers are therefore planting them as never before.

But expanded acreage must be accompanied by top yields. Farmers are asking many questions about soils, planting, varieties to use, cultivation, harvesting, and storing. These are answered briefly in this circular. For more information, consult your farm adviser or write the *University of Illinois, College of Agriculture, Urbana*.

***Soybeans will grow on practically all kinds of soils, but good corn land gives the best yields***

## ***What are the best varieties***

Varieties differ in time of maturing and in adaptation to fertility levels and soil acidity. No one variety is best for all conditions.

**Northern Illinois.** *Richland*, one of the earliest varieties, is especially adapted to highly fertile soils where beans lodge badly. Early selections of *Manchu* (Wisconsin 3, Wisconsin 606, Mandell, and Thomas Manchu) are all adapted to soils of medium fertility. *Mukden*, a popular variety in Iowa, matures about the same time as the Thomas Manchu and is adapted to soils of medium fertility.

**Central Illinois.** *Richland*, very early, is suitable for highly fertile soils. *Illini* does best on fertile soils. *Dunfield* and *Manchu* are adapted to medium to fertile soils. *Chief*, later than the *Illini*, is adapted to medium to fertile soils. *Scioto* (a late Manchu selection from Ohio), *Type 118*, and *Type 119* (from which *Chief* was selected) have the same maturity and adaptation as *Chief*.

**Southern Illinois.** *Illini* and *Dunfield* are early maturing and are adapted to medium to fertile soils. *Chief*, *Scioto*, and *Types 118* and *119* are adapted to good soils but are more acid-tolerant than *Illini*. *Macoupin*, *Mansoy*, *Morse*, and *Mt. Carmel* are acid-tolerant and later than the *Chief*. *Arksoy*, the latest of these beans, tolerates acidity but responds to high fertility.

## ***Should soil be plowed or disked***

If the land is free from cornstalks and other plant refuse, thorough disking is enough. If the beans are following corn and stalks are still on the land, the stalks should be disked and then plowed under.

## ***What makes a good seedbed***

Soybeans do best where the surface soil is thoroughly pulverized and mellow and the subsurface is firm and free from clods. Harrowing the seedbed at intervals of a week to ten days will kill weed seedlings and tend to firm the seedbed at the same time. The necessary number of harrowings varies; weedy fields require more than others. The field should always be harrowed just ahead of the drill or planter; this gives the beans an even chance with the weeds.

## ***Is inoculation necessary***

Inoculation is good insurance. Vigorous nodule-forming bacteria are so important that few growers can afford to take a chance and omit inoculation. If previous bean crops on the field were grown in rows, the inoculation may not be thoroughly distributed throughout the soil; in such cases inoculation is necessary. If the soil is sweet, however, and the soybeans grown on the land during the last two or three years were drilled like wheat and thoroughly inoculated, it might not pay. On the other hand, it costs so little to inoculate a bushel of seed that when the price of beans is \$1.60 a bushel, a half-gallon increase in yield will pay for the inoculation.

## ***Should soybeans be fertilized***

Soybeans respond less to fertilizers, with the possible exception of potash, than most other crops. Unless corn yields on the same field have been seriously reduced by a potash deficiency, the use of a potash fertilizer will not help soybeans. Available supplies of fertilizers can be used to better advantage for such crops as wheat, alfalfa, corn, etc.

Probably the best fertility treatment for soybeans is a good rotation that includes a biennial legume.

## ***Do soybeans increase erosion***

Soybeans tend to leave the soil loose. On land subject to erosion, soil losses will occur unless precautions are taken. On erosive land having a 3- to 6-percent slope, soybeans should be planted on the contour.

Most of the soil loss charged to soybeans occurs during the fall and winter after the crop has been harvested. Such losses can be largely overcome by seeding a cover crop immediately behind the combine, scattering the soybean straw on the seeded land. This practice will usually provide excellent pasture besides reducing erosion losses.

## ***When should soybeans be planted***

Best yields are obtained by seeding soybeans about corn-planting time. Since corn yields are more likely to be lowered by delayed planting than are bean yields, it is usually best to plant corn first and then seed the beans as soon as possible afterward.

## ***Should beans be row-planted or drilled like wheat***

Row planting, tho it has some disadvantages, will probably yield more beans. Row plantings require about half as much seed as drilled plantings, do not lodge as badly, the quality of the beans is better, and weeds are more easily controlled. Drilled beans are likely to require less labor for cultivation, but cultivating must be done at just the right time if weeds are to be controlled.

## ***What width of row for row plantings***

Beans planted in rows 24 to 28 inches apart will probably yield best. The machinery available for planting and cultivating will determine the width of row; when corn-cultivating machinery is used, beans should be planted in rows wide enough to permit the use of this machinery with a minimum loss of time in adjustment and operation.

If the beans are planted in wider rows—36 or 40 inches—and the same amount of seed is used per acre, yields may not be reduced much.

## ***What is best rate of seeding***

The amount of seed needed per acre depends on whether the crop is planted in rows or drilled and to a certain extent on the variety. On good land standard varieties such as Dunfield, Illini, and Manchu are usually seeded at the rate of about 1 bushel an acre in row plantings and 2 bushels in drilled plantings.

## ***At what depth should beans be planted***

In heavy soils 1 inch is a good depth to plant beans, and in light loamy soils not more than 2 inches. Beans that are planted too deep will not do well.

## ***What if soil crusts before beans are up***

The rotary hoe is the best tool to crack crusted soil and help beans get out of the ground. If a rotary hoe is not available, a spike-tooth harrow set so the teeth slant somewhat is the next best tool. Cultivating should be done before the ground dries out and becomes hard.

## ***When and how often should beans be cultivated***

Weeds are the chief hazard of soybean production. Rotary-hoeing or harrowing should be started just before beans appear, and should continue at intervals of a week to 10 days until the beans are 15 to 18 inches high. After the beans are too tall to be cultivated with a rotary hoe, row beans should be cultivated at least twice with a cultivator equipped with sweeps.

## ***How and when should beans be harvested and stored***

The most satisfactory method of harvesting is with a combine. Combining can be started as soon as the moisture content of the beans is below 14 percent. If harvested with a binder, the beans can be cut and shocked as soon as the leaves fall. The time for threshing, like combining, depends on the moisture content of the beans, which should not be above 14 percent for safe home storage.

If the moisture content of the beans is low enough—12 to 14 percent—they may safely be stored in any farm bin that would do for wheat or shelled corn.

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